WEST

Generate Collection | Print

L2: Entry 2 of 6 File: USPT Feb 26, 2002

DOCUMENT-IDENTIFIER: US 6350687 B1
TITLE: Method of fabricating improved copper metallization including forming and removing passivation layer before forming capping film

Detailed Description Text (13):
Adverting to FIG. 3, in accordance with embodiments of the present invention, the cleaned surface 30 of the Cu or Cu alloy interconnect member 13A is treated to form a controlled passivating film prior to any substantial oxidation. For example, the clean surface can be treated with a chemical such as azoles, benzotriazole, 1,2,4-triazole, 8-hydroxyquinoline, 2-mercaptobenzimidazole, imidazole, and alkanethiols to form a passivating film. A preferred alkanethiol is 2-mercaptobenzimidazole. A volatile passivating film is a substance which will vaporize from the Cu surface upon heating during subsequent processing steps, such as SiN deposition. In another embodiment, a passivating layer may be formed by electroless plating a metal layer on the surface of the Cu or Cu alloy layer. In a further embodiment, the passivating layer can be formed by depositing a metallic compound on the surface of the Cu/Cu alloy layer by CVD.

WEST

Generate Collection Print

L2: Entry 3 of 6 File: JPAB Jan 6, 1999

PUB-NO: JP411003892A
DOCUMENT-IDENTIFIER: JP 11003892 A
TITLE: MANUFACTURE OF SEMICONDUCTOR DEVICE

PUBN-DATE: January 6, 1999

INVENTOR-INFORMATION:
NAME COUNTRY
SATO, SHINJI

ASSIGNEE-INFORMATION:
NAME COUNTRY
RICOH CO LTD

APPL-NO: JP09167909
APPL-DATE: June 11, 1997

INT-CL (IPC): H01 L 21/3213; H01 L 21/3065; H01 L 21/3205

ABSTRACT:

PROBLEM TO BE SOLVED: To provide a copper wiring of low resistance and high reliability by preventing surface oxidation of the copper wiring etc., and easily burying interlayer films between wiring layers, and decreasing absolute steps.

SOLUTION: An insulating film 12, a titan film 14 and a titan nitride film 16 as a first barrier film, a copper film 18, a titan nitride film 20 as a second barrier film, and a silicon nitride film 22 as a film for forming an etching mask are sequentially laminated on a silicon substrate 10, and a photoresist 24 is coated thereon, and a wiring pattern is formed by a photolithography technique, and the silicon nitride film 22 is etched using the photoresist 24 as an etching mask to form an etching mask 22. After the photoresist 24 is removed by ashing wiring layer is formed by etching using the etching mask 22, and the etching mask 22 is removed by etching, and immersed in a benzotriazol liquid to form a Cu-BTA (benzotriazole) compound 26 at the sidewall of the copper film 18. And an interlaminar insulating film 28 is formed to obtain the copper wiring of low resistance and high reliability.